

North Dakota
State Implementation Plan
Revision

(New section)

Section 8.3.1 Continuous Opacity Monitoring for Fluid Bed
Catalytic Cracking Units

Background:

The Tesoro Refining and Marketing Company currently operates a fluidized bed catalytic cracking unit (FCCU) at the Mandan Refinery near Mandan, North Dakota. The refinery, which was previously operated by Amoco Oil Company and more recently by British Petroleum Company (BP), was constructed in the 1950's. As such, the operator of the refinery is required to continuously monitor the opacity of emissions from the FCCU as mandated by 40 CFR 51, Appendix P, Section 2.4. On May 10, 1977, the Department issued an Order to Amoco Oil Co. requiring the installation and operation of continuous opacity monitoring equipment for emissions from the FCCU. The owners/operators of the refinery have continuously monitored the opacity since the compliance date of September 30, 1978.

In 2001, BP, and ultimately Tesoro, entered into a Consent Decree with the U.S. Environmental Protection Agency to settle allegations of noncompliance under the Prevention of Significant Deterioration Program. As part of this settlement, Tesoro was required to control sulfur dioxide emissions from the FCCU. Tesoro installed a wet scrubber and wet electrostatic precipitator to comply with the terms of the Consent Decree. A secondary benefit of the control system is the reduction of particulate matter emissions and visible emissions (opacity) from the FCCU. However, the large amount of moisture from the control system has made monitoring of the opacity of emissions unfeasible. Specifically, water droplets contained in the flue gas could potentially result in the monitor overstating the true opacity.

In response to the installation of the scrubber and wet electrostatic precipitator, Tesoro has requested alternative monitoring procedures and requirements in accordance with 40 CFR 51, Appendix P, Section 6.0. The Department believes that alternative monitoring procedures are warranted based on the large amount of moisture and the low stack gas temperature.

Alternative Monitoring Procedures and Requirements:

Alternative monitoring for visible emissions shall consist of the following:

1. Monitoring Parameters:

- A. Wet Gas Scrubber - Monitor liquid to gas ratio.
- B. Wet Electrostatic Precipitator - Monitor electrical current to assure electrical field is energized.

2. Frequency of Monitoring:

- A. Wet Gas Scrubber - Hourly.
- B. Wet Electrostatic Precipitator - Hourly.

3. Indicator Ranges:

- A. Wet Gas Scrubber - At least 30.9 gallons per minute of scrubber solution per one thousand standard cubic feet per minute of flue gas (0.0309 gal/scf) on a 1-hour block average basis.
- B. Wet Electrostatic Precipitator - Current to the unit.

4. Recordkeeping:

- A. Wet Scrubber - Records of the liquid to gas ratio that is monitored on a continuous basis.
- B. Wet Electrostatic Precipitator - Records that indicate the unit was energized.

All records shall be kept for at least five years.

5. Reporting:

Tesoro shall submit semi-annual deviations reports for the FCCU. The report shall list any time period monitoring is not conducted as outlined in this section and anytime monitoring indicates excursions outside the indicator range. Tesoro shall also submit an annual certification indicating compliance with the visible emissions limit.

Public Hearing _____
(date)

Finalized _____
(date)